

Claim 1, amend to read as follows:

1. (Twice Amended) In a wavelength router for fiber optical networking and computer interconnects, the improvement comprising:

at least one diffraction grating which utilizes only N wavelengths to interconnect N inputs to N outputs in a fully non-blocking manner, wherein N is any number,

a second diffraction grating positioned to receive outputs from said first mentioned diffraction grating,

a collection optic assembly positioned to receive outputs from said second diffraction grating, and a plurality of filter modules positioned to receive outputs from said collection optic assembly.

2. (Twice Amended) The improvement of Claim 7, wherein said diffraction grating is augmented by elements selected from the group consisting of coupler and wavelength selective elements to provide fully non-blocking interconnection.

Claim 4, amend to read as follows:

4. (Twice Amended) In a wavelength router for fiber optical networking and computer interconnects, the improvement comprising:

at least one diffraction grating which utilizes only N wavelengths to interconnect N inputs to N outputs in a fully non-blocking manner, wherein N is any number,

said at least one diffraction grating being augmented by a wavelength-selective coupler which comprises an optical wavelength add-drop multiplexer.

Claim 7, amend to read as follows:

7. (Twice Amended) In a wavelength router for fiber optical networking and computer interconnects, the improvement comprising:

at least one diffracting grating which utilizes only N wavelengths to interconnect N inputs to N outputs in a fully non-blocking manner, wherein N is any number,

a collection optic assembly positioned to receive outputs from another diffraction grating, and

a plurality of filter modules positioned to receive outputs from said collection optic assembly.

Claim 11, amend to read as follows:

11. (Twice Amended) In a wavelength router for fiber optical networking and computer interconnects, the improvement comprising:

at least one diffraction grating which utilizes only N wavelengths to interconnect N inputs to N outputs in a fully non-blocking manner, wherein N is any number,

a second diffraction grating positioned to receive outputs from said first mentioned diffraction grating,

at least one collection and re-direction optic assembly position to direct inputs to said first-mentioned diffraction grating, and a retro-reflector assembly position to receive outputs from said second diffraction grating and reflect certain of said outputs back through said diffraction grating.

Claim 15, amend to read as follows:

15. (Amended) The improvement of Claim 4, additionally including at least one coupler for combining outputs from said at least one diffraction grating.

Claim 16, amend to read as follows:

16. (Twice Amended) A wavelength-conserving grating router for intermediate wavelength density, including:

at least one diffraction grating for receiving a number of inputs and for discharging a greater number of outputs, and

means for combining at least a portion of said outputs,

said means for combining at least a portion of said outputs being selected from directional couplers and wavelength-selective couplers,

said wavelength-selective couplers including optical wavelength add-drop multiplexers.

Claim 17 and 18, cancel.

Claim 20, amend to read as follows:

20. (Twice Amended) The grating router of Claim 23, additionally including assemblies operatively connected to said diffraction gratings selected from the group consisting of collection and re-direction optic and retro-reflector assemblies, and collection optics and filter module assemblies.

Please add the following claims:

21. The improvement of Claim 3, wherein said coupler comprises a wavelength-selective coupler which comprises an optical wavelength add-drop multiplexer.

22. The improvement of Claim 4, additionally including a second diffraction grating position to receive outputs from said first mentioned diffraction grating.

23. The grating router of Claim 16, wherein said means includes a second diffraction grating.